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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/584,820	01/24/2008	Tsutomu Kitoh	14321.86	5579

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EXAMINER	
KIM, ELLEN E	

ART UNIT	PAPER NUMBER
2874	

MAIL DATE	DELIVERY MODE
08/07/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/584,820	KITOH ET AL.	
	Examiner	Art Unit	
	Ellen Kim	2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/24/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Grot et al (USPUB 20050200942).

In re claims 1-4, Grot et al disclose an optical functional circuit in which a plurality of circuit elements are formed on a substrate, comprising:

a wave propagation medium 525, 535, 545 (see fig. 5B) for converting an optical path of a leakage light that is not emitted from a predetermined output port of the circuit element so as to prevent the leakage light from being coupled to a different circuit element (see ¶0056),

wherein the wave propagation medium is constituted by an optical waveguide, which is provided with a clad layer formed on the substrate and a core embedded in the clad layer, and a part of the optical waveguide is formed in accordance with a refractive index distribution which is multiple scattered (fig. 8B, 8C, and ¶0067).

In re claim 2, Grot et al's fig. 3A-5B clearly shows that the refractive index distribution of the wave propagation medium is determined in accordance with the refractive index possessed by each of virtual pixels defined by a virtual mesh.

In re claim 3, fig. 5B shows the different size of holes, and this shows that the

refractive index distribution of the wave propagation medium is determined by modulating a width of the optical waveguide in an optical axis direction.

Claims 1-5 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Zoorob et al (USPUB 20040213536).

In re claims 1-5, Zoorob et al disclose an optical functional circuit in which a plurality of circuit elements are formed on a substrate, comprising:
a wave propagation medium (1602, 1606 in fig. 16) for converting an optical path of a leakage light that is not emitted from a predetermined output port of the circuit element so as to prevent the leakage light from being coupled to a different circuit element, wherein the wave propagation medium is constituted by an optical waveguide, which is provided with a clad layer formed on the substrate and a core embedded in the clad layer, and a part of the optical waveguide is formed in accordance with a refractive index distribution which is multiple scattered.

In re claim 2, fig. 17-19 clearly shows that the refractive index distribution of the wave propagation medium is determined in accordance with the refractive index possessed by each of virtual pixels defined by a virtual mesh.

In re claim 3, fig. 17 and 18 show the different size of holes, and this shows that the refractive index distribution of the wave propagation medium is determined by modulating a width of the optical waveguide in an optical axis direction.

In re claim 5, fig. 16 shows that the output is located away from the axis of the input signal.

Claims 6, 7, 9, 10, 12, and 13 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Welch et al (USPUB 20060067619).

In re claim 6, Welch et al disclose an optical functional circuit including a wave propagation medium 12 (fig. 7B) constituted by a waveguide which is provided with a clad layer formed on a substrate and a core portion embedded in the clad layer (fig. 8A) and in which a part of the optical waveguide is formed in accordance with a refractive index distribution which is multiple scattered (grating structure), said optical functional circuit being characterized in that:

on the substrate, positioning markers 24, 26 (fig. 7B) for defining input and output ports defined in the wave propagation medium are formed, and

(a) the positioning markers 24, 26, which are formed on members (see fig. 31) having optical parts optically coupled to the input and output ports and define light focusing positions of the optical parts, and (b) the positioning markers for defining the ports are aligned, thereby coupling the ports and the optical parts optically.

In re claim 7, Welch et al disclose optical functional circuit including a wave propagation medium 12 (fig. 7B) constituted by an optical waveguide which is provided with a clad layer formed on a substrate and a core portion embedded in the clad layer (fig. 8A), and a part of the optical waveguide is formed in accordance with a refractive index distribution which is multiple scattered (grating), said optical functional circuit being characterized in that:

on the substrate 122 (fig. 8A), monitoring waveguides 24, 44 (fig. 7A) for defining input and output ports defined in the wave propagation medium are formed from an end facet

on which the input port is formed to an end facet on which the output port is formed, and (a) optical fibers 48, 37 for positioning, which are formed on members having optical parts optically coupled to the input and output ports and define light focusing positions of the optical parts, and (b) the monitoring waveguides are aligned, thereby coupling the input and output ports and the optical parts optically.

In re claims 9 and 12, it is clear that the waveguide medium is inherently functioning as a light collecting lens.

In re claim 10 and 13, the optical part which is coupled to at least one of the input and output ports is an optical waveguide (see fig. 31).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welch et al in view of Watanabe (USPUB 20050254770).

Welch et al disclose every aspect of claimed invention except for the optical part which is coupled to at least one of the input and output ports is an optical fiber, and the member is a glass block for fixing the optical fiber.

Watanabe shows a general teaching of coupling optical fibers and optical circuit by utilizing the optical fiber (part of 328 under block 14 in fig. 7), and the glass block member 14 for fixing the optical fiber.

It would have been obvious to the ordinary skilled person in the art at the time the invention was made to modify Welch et al device to include the optical fiber part, and the glass block member as shown in Watanabe's reference for the purpose of higher coupling efficiency of the optical fiber, and the optical circuit.

Conclusion

In formation regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

For all official patent application related correspondence for organizations reporting to the Commissioner of Patents:

- Correspondence that is transmitted by facsimile must be directed to the central facsimile number, (703) 872-9306.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Further references of interest are cited on Form PLO-892, which is attachment to this office action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ellen Kim whose telephone number is (571) 272-2349. The examiner can normally be reached on Monday through Thursday.

/Ellen Kim/
Primary Examiner,
Art Unit 2874
August 7, 2008/EK